

The Continuing Quest for Certainty: Decision Superiority and the Future Force

**A Monograph
by
Major Richard Scott Jeffress
U.S. Army**



**School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas**

Academic Year 03-04

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Richard Scott Jeffress

Title of Monograph: The Continuing Quest for Certainty: Decision Superiority and the Future Force

Approved by:

Kevin C.M. Benson, COL, AR

Monograph Director

Robert H. Berlin, Ph.D.

Director, Academic Affairs
School of Advanced
Military Studies

Robert F. Baumann, Ph.D.

Director,
Graduate Degree
Programs

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 26 MAY 2004		2. REPORT TYPE		3. DATES COVERED -	
4. TITLE AND SUBTITLE Continuing quest for certainty: decision superiority and the Future Force				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Richard Jeffress				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) US Army School for Advanced Military Studies, 250 Gibbon Ave, Fort Leavenworth, KS, 66027				8. PERFORMING ORGANIZATION REPORT NUMBER ATZL-SWV	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT With information technologies increasingly shaping the environment in which U.S. military forces operate, Joint Vision 2020 and other recent DoD literature highlight the fundamental importance of achieving "decision superiority"--essentially, "making better decisions faster" than any adversary. This monograph examines the feasibility and usefulness of the decision superiority concept at the operational and tactical levels of war, using John F. Schmitt's "A Practical Guide for Developing and Writing Military Concepts" as a source for evaluation criteria. Specifically, the monograph assesses the degree to which the decision superiority concept is consistent with the nature and theory of war, reflects a historical understanding of war, balances military art and science, and fits within the proper military-technological context. The monograph concludes that despite JV 2020's initial discussion of human factors and their crucial importance in achieving decision superiority, other DoD concept papers published since June 2000 have presented a largely one-sided view of the subject, essentially that current and promised future technology alone will enable decision superiority. As a result, the decision superiority concept in its current state is neither feasible nor particularly useful for the U.S. military. A more balanced approach to the problem of uncertainty, one that emphasizes human factors as strongly as technological enablers, accurately accounts for and accepts both the nature of war and historical lessons, and provides a proper mix of military art and science, would result in a more realistic and beneficial concept for further development within the ongoing DoD Transformation.					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT 1	18. NUMBER OF PAGES 50	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

ABSTRACT

The Continuing Quest for Certainty: Decision Superiority and the Future Force by MAJ Richard Scott Jeffress, USA, 46 pages.

The United States military is currently engaged in a transformation effort aimed at producing a force that is “dominant across the full spectrum of military operations – persuasive in peace, decisive in war, preeminent in any form of conflict.” Given an operating environment that is increasingly shaped by information technologies, joint warfighting concepts being developed to address the goal of full-spectrum dominance place heavy emphasis on harnessing the power of information. *Joint Vision 2020* highlights the fundamental importance of achieving “decision superiority.” This decision superiority concept is described in Department of Defense literature as a crucial link between the largely quantitative objective of information superiority and the critically qualitative objective of dominant, decisive action across the spectrum of conflict.

This monograph examines the feasibility and usefulness of the decision superiority concept at the operational and tactical levels of war. It uses John F. Schmitt’s “A Practical Guide for Developing and Writing Military Concepts” as a source for evaluation criteria; specifically, the monograph assesses the degree to which the decision superiority concept is consistent with the nature and theory of war, reflects a historical understanding of war, balances military art and science, and fits within the proper military-technological context. Given the present day environment in which the decision superiority concept is being developed, and because any “credible future operating concept reflects the phenomenon as it is rather than distorts the phenomenon to conform to the desires of the concept,” these specific criteria are particularly appropriate for evaluating this concept.

In order to assess the degree to which the decision superiority concept adequately accounts for the factors in Schmitt’s paper, the monograph is structured into four main parts. First, the research looks at military leaders’ continual quest for certainty and the impact throughout history of factors such as organization, training, doctrine, individual leader qualities, and technology on leaders’ ability to make consistently superior decisions. Second, the research examines Schmitt’s “foundations . . . [and] attributes of a good future operating concept” in order to develop criteria with which to evaluate the feasibility and suitability of the decision superiority concept. Third, the monograph examines and assesses current joint concept papers and initiatives for turning the concept of decision superiority into reality in light of the evaluation criteria. Finally, the fourth part of the monograph provides conclusions and offers recommendations for improving the decision superiority concept.

The monograph concludes that the ideal of decision superiority and the closely related quest for certainty are certainly relevant and timely objectives, still as worthy of pursuit today as they have been throughout history. However, despite *JV 2020*’s initial discussion of human factors and their crucial importance in achieving decision superiority, numerous other DoD concept papers published since June 2000 have presented a largely one-sided view of the subject that relies almost exclusively on both current and promised future technology to provide the solutions that will lead to decision superiority for U.S. forces. As a result, the decision superiority concept in its current state is neither feasible nor particularly useful for the U.S. military. A more balanced approach to the problem of uncertainty, one that emphasizes human factors as strongly as technological enablers, accounts for and accepts both the nature of war and historical lessons, and provides a proper mix of military art and science, would result in a more realistic and potentially beneficial concept for further development within the ongoing DoD Transformation.

TABLE OF CONTENTS

INTRODUCTION.....	1
THE QUEST FOR CERTAINTY.....	6
EVALUATING OPERATIONAL CONCEPTS	14
Foundational Principles	15
Attributes of a good operating concept	17
Assessing future operating concepts.....	18
TESTING THE DECISION SUPERIORITY CONCEPT.....	21
The Concept Emerges.....	21
Decision superiority and <i>Joint Vision 2020</i>	23
Decision superiority and DoD Guidance	24
Decision superiority and Evolving Joint Concepts	26
Evaluating the Concept	29
CONCLUSIONS AND RECOMMENDATIONS	39
Conclusions	39
Recommendations	41
BIBLIOGRAPHY	44

CHAPTER ONE

INTRODUCTION

The United States (US) military is currently engaged in a transformation effort aimed at producing a force that is “dominant across the full spectrum of military operations – persuasive in peace, decisive in war, preeminent in any form of conflict.”¹ Given an operating environment that is increasingly shaped by information technologies, joint warfighting concepts being developed to address the goal of full-spectrum dominance place heavy emphasis on harnessing the power of information. *Joint Vision 2020 (JV2020)*, a Joint Chiefs of Staff document written to provide a conceptual foundation for the Future Force, highlights the fundamental importance of achieving “information superiority.” At the same time, however, the writers of *JV2020* recognize that superior information, by itself, is of little value. To achieve full spectrum dominance, superior information must be translated into superior knowledge and decisions, which can in turn be translated into superior actions. The *JV 2020* concept of “decision superiority,” then, serves as the all-important link between the largely quantitative objective of information superiority and the critically qualitative objective of dominant, decisive action across the spectrum of conflict.

Striving to make better, faster decisions than one’s enemy in order to shape the situation to one’s advantage is not a new concept in warfare. From the earliest times, men in conflict have sought to “out-think” and act more quickly than their opponent. In his *Art of War*, Sun Tzu consistently highlights knowledge as an important trait for generals, and writes about the importance of gaining detailed knowledge of the enemy while remaining “unfathomable” to that enemy.² In *Command in War*, military historian and theorist Martin Van Creveld uses the analogy of a “directed telescope” to discuss how Napoleon and Prussian chief of staff Helmut von Moltke were frequently able to use selected information to make effective decisions and direct

¹ Joint Chiefs of Staff, *Joint Vision 2020* (Washington D.C.: Government Printing Office, June 2000), 1.

² Sun Tzu, *Art of War*, trans. Ralph D. Sawyer (Boulder, CO: Westview Press, 1994), 133-135.

decisive actions against enemy forces.³

What is somewhat new to this problem of better, faster decision-making is the relative importance placed on technology-enabled information solutions. In 1980, Alvin Toffler's *The Third Wave* discussed the notion that knowledge could win, or even prevent, wars, and set off a still-continuing discourse on the potential for information and technological advances to enable improved decision-making.⁴ Before the advent of the current "information age" (arguably, prior to 1991 and Operation Desert Storm), simply possessing a superior quantity of information could provide a decided advantage over an adversary. Today, however, military intelligence, communications, and other closed networks (not to mention the internet) are capable of delivering such an overwhelming quantity of information that a qualitatively different approach to managing that information is required. Additionally, the amount of information available to US adversaries has also grown exponentially in the past few years. Sheer information superiority is no longer good enough; decision superiority is now the stated requirement to achieve desired ends. Over the past decade, the US military has found itself increasingly focused on emerging concepts such as "network centric warfare," "effects-based operations," and "rapid decisive operations," and is devoting ever-increasing resources to achieving the results these concepts promise.

Postulated as the crucial link between information superiority and full spectrum dominance, the concept of decision superiority serves as a foundational basis, albeit an implicit one, for each of these other concepts. As such, it is necessary for military leaders to ensure that the concept is truly feasible and suitable for the Future Force. As currently published, however, certain aspects of the decision superiority concept may be at odds with previously accepted historical and theoretical observations on this issue, and may cause concern for US operational planners.

While *JV 2020* does note, "decision superiority does not automatically result from

³ Martin Van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), 75, 115.

⁴ Alvin Toffler, *The Third Wave* (New York, NY: Bantam Books, 1980).

information superiority. Organizational and doctrinal adaptation, relevant training and experience, and the proper command and control mechanisms and tools are equally necessary,”⁵ and does discuss the importance of the “human in the loop” aspect of joint command and control,⁶ the document also acknowledges that developments in information technology have led some to focus exclusively on technological solutions. This admission is borne out by statements in various transformation guidance and joint concept developments documents published in the four years since the release of *JV2020*.

An April 2001 *Transformation Study Report* prepared for the Secretary of Defense lists “Achieving Information and Decision Superiority” as the “first and most urgent need” in defense transformation. Defining decision superiority as “the ability to make better and faster decisions than any adversary, regardless of the information available to that adversary,” the Study Group notes a number of existing gaps in US capabilities, and lists a number of recommended solutions to fill in those gaps. Each of the “solutions” is expressed solely in technological terms, entailing specific equipment or increased networking capability.⁷ More recently, in reviewing the six operational goals listed in the 2001 *Quadrennial Defense Review (QDR)*, the Department of Defense’s (DOD) April 2003 *Transformation Planning Guidance (TPG)* states that the goal of developing an interoperable, joint C4ISR architecture “will *guarantee* our combat leaders *decision superiority* [emphasis added].”⁸ Will existing or future technologies, in and of themselves, suffice to enable US military forces to achieve “guaranteed” decision superiority? Does this premise adequately account for the nature of war, or current and future operating environments? Is the decision superiority concept actually valid in these environments?

⁵ *Joint Vision 2020*, 12.

⁶ *Ibid.*, 38-40.

⁷ Transformation Study Group, *Transformation Study Report Executive Summary*, April 27, 2001, 8-11. The Study Group states the need for a standing, deployable joint command and control system, a combat information system consisting of “integrated, robust networks,” and a substantial ISR and targeting capability including significant numbers of space-, air-, and ground-based sensors.

⁸ Donald H. Rumsfeld, *Transformation Planning Guidance*, April 2003 (on-line): available from http://www.oft.osd.mil/library/lib_files/doc_129_Trans_PL_Guid_Apr_2003_1.pdf, internet; accessed 17 October 2003, 11.

Somewhat in contrast to the DoD documents described above, an August 2003 action officer-level draft of US Joint Forces Command's (USJFCOM) *Joint Operating Concept (JOC)* for *Major Combat Operations (MCO)* emphasized the non-technological factors associated with the quest for certainty in warfare. While defining the concept using nearly the same verbiage as *JV 2020*, the USJFCOM writers described decision superiority as a "state," a "fleeting and elusive condition that will continually ebb and flow as our adversaries adapt to their environment." The essence of the decision superiority concept, then, is "a commander using the knowledge available to him, considered in the friction and uncertainty of the war, and tempered with an understanding of higher commander's intent, to make and implement a sound, informed, and well-reasoned decision faster than his adversary."⁹ Subsequent drafts of the document, however, did away with this discussion; by February 2004, the latest version of the *MCO JOC* discussed the benefits of achieving decision superiority without ever mentioning the term. Does the definition and discussion of decision superiority in these *MCO* concept papers mark an evolution of the decision superiority concept, or does it reveal confusion among the various DoD agencies regarding the actual nature of the concept? If the latter is true, will this confusion hinder DoD's ability to plan for, resource, and test initiatives that would otherwise enable a more effective concept?

Ongoing operations in Afghanistan and Iraq have highlighted the challenge of achieving decision superiority for sustained periods. As these operations continue, can increased technological capabilities provide the necessary solutions to this challenge? If not, are there other factors that could be addressed in order to achieve the desired goal and better enable dominant action?

This monograph examines the feasibility and usefulness of the decision superiority concept at the operational and tactical levels of war. It uses John F. Schmitt's "A Practical Guide for Developing and Writing Military Concepts" as a source for evaluation criteria; specifically,

⁹ United States Joint Forces Command, *Major Combat Operations Joint Operating Concept*, Version 0.1, Action Officer-Level Draft Concept Paper, (Suffolk, VA, 7 August 2003), 24-26.

the monograph assesses the degree to which the decision superiority concept is consistent with the nature and theory of war, reflects a historical understanding of war, balances military art and science, and fits within the proper military-technological context.¹⁰ Given the present day environment in which the decision superiority concept is being developed, and because any “credible future operating concept reflects the phenomenon as it is rather than distorts the phenomenon to conform to the desires of the concept,”¹¹ these specific criteria are particularly appropriate for evaluating this concept.

In order to assess the degree to which the decision superiority concept adequately accounts for the above factors, the monograph is structured into four main parts. First, the research looks at military leaders’ continual quest for certainty and the impact throughout history of factors such as organization, training, doctrine, individual leader qualities, and technology on leaders’ ability to make consistently superior decisions. Second, the research examines Schmitt’s “foundations . . .” and “attributes of a good future operating concept” in order to develop criteria with which to evaluate the feasibility and suitability of the decision superiority concept. Third, the monograph examines and assesses current joint concept papers and initiatives for turning the concept of decision superiority into reality in light of the evaluation criteria. Finally, the fourth part of the monograph provides conclusions and offers recommendations for improving the decision superiority concept.

¹⁰ John F. Schmitt, “A Practical Guide for Developing and Writing Military Concepts,” *DART Working Paper #02-4*, (December 2002), 12-14. Schmitt’s paper, written for the Defense Adaptive Red Team (DART), as part of an ongoing project to develop more effective, robust joint operational concepts, provides a series of guidelines for developing and writing military concepts, and a framework with which to evaluate the feasibility and utility of those concepts.

¹¹ Schmitt, 13.

CHAPTER TWO

THE QUEST FOR CERTAINTY

From Plato to NATO, the history of command in war consists essentially of an endless quest for certainty . . .

Martin Van Creveld, *Command in War*

In his acclaimed 1985 work, *Command in War*, Martin Van Creveld describes certainty as the “product of two factors, the amount of information available for decision making and the nature of the task to be performed.”¹² To that description can be added a third factor: the ability to effectively manage and utilize information. Together, these three factors describe what Van Creveld understands as the history of command, “a race between the demand for information and the ability of command systems to meet it.”¹³ Today, the decision superiority concept is expected to play a key role in DoD’s efforts to win that race in future conflicts. While the precise term is new, the general concept is not. Throughout history, military leaders have employed various strategies in an attempt to prepare for, and win, the closely associated race of making better, faster decisions than their adversaries. These strategies generally fall into what historian Christopher Bellamy identifies as four principal elements in the conduct of war ever since the Battle of Megiddo in 1469 B.C.: technology; functional organization; the military art of strategy, operations and tactics; and the interlinked elements of command, control, communications, and intelligence.¹⁴ A brief survey of military history provides insights into the effectiveness of these strategies and illuminates some important themes and trends for concept developers to consider as they continue to define and develop the decision superiority concept.

Prior to the nineteenth century, military leaders’ efforts to achieve certainty and gain decision superiority over an adversary were significantly impeded by a simple lack of resources and technological enablers. Intelligence about the enemy was usually limited to what could be

¹² Van Creveld, 265.

¹³ Ibid.

¹⁴ Christopher Bellamy, *The Evolution of Modern Land Warfare* (London: Routledge, 1990), 11.

gleaned from prisoners, spies, and common travelers, and was often slow to arrive, further degrading its usefulness. While obtaining intelligence was a challenge, communicating decisions based on this intelligence or otherwise disseminating information among friendly forces was also a serious struggle. Slow, non-secure communications means necessitated massing forces and meeting the enemy on relatively small battlefields. While various staff positions, such as the Quartermaster General, existed within certain militaries, command and control, along with the decision-making process, was largely an individual effort, with success being a function of the individual leader's capabilities. Commanders were left with three general options for exercising command: move around the battlefield, personally issuing orders and exhorting their troops; position themselves at what they hoped would be the battlefield's decisive point and relay orders by messenger; or plan the battle in advance, then rely on trained and disciplined subordinate commanders and troop formations to execute the details as ordered.¹⁵ Each of these options, however, entailed its own unique limitations and risks, and all three were constrained by issues of time and space that limited the commander's ability to quickly receive, prioritize, and analyze information in order to make and disseminate a decision. In short, the extreme limitations of communications technology during this period left military commanders without an effective system for achieving certainty or decision superiority.

Communications technology had changed little by the time Napoleon came to power in France. Napoleon, however, managed to work brilliantly within the constraints of his era and change the way in which war was waged. By structuring the Grand Armee into large divisions and corps, and organizing a functional staff under Berthier, Napoleon was able to develop an effective command system that expertly complemented his personal military genius and allowed him to achieve some degree of decision superiority--at least for a time. The staff handled correspondence, oversaw the many details of daily operations within the Grand Armee, provided necessary information about the Armee, and expanded upon Napoleon's orders to his subordinate

¹⁵ Van Creveld, 53.

commanders. The Armée's structure, meanwhile, allowed for effective decentralized operations within a larger campaign framework. Additionally, Napoleon employed a group of talented young officers to serve as his ears, eyes, and mouthpiece in the field; a "directed telescope" which could be turned at will toward any part of the battlefield and the forces therein.¹⁶

Together, these three elements of Napoleon's command system complemented each other in a near ideal manner, providing Napoleon with a relative advantage over his opponents at each step along the way. The staff and the formal reporting system it managed determined--more quickly than his adversaries could--what questions Napoleon needed to ask, the directed telescope enabled him to answer those questions faster and make better-informed decisions than his enemies, and the decentralized Grand Armée organizational structure consistently proved an extremely effective means of executing those decisions. Napoleon, then, appears to have understood far better than his contemporaries the decision-making and communications means available to him, as well as the limitations associated with those means. The Emperor's ability to know what he could, and could not, do; and to translate that knowledge into effective decisions and actions, was a critically important factor in all of his victories. And yet, as borne out by even his greatest triumphs, such as at Jena in 1806, Napoleon was often able to exert control over only a portion of the battlefield, and had only limited ability to achieve an early equivalent of decision superiority over his adversaries. Despite the advantages of his specially-designed command system, the sheer size of his army combined with the communications challenges of his day to prevent him from ever achieving complete situational understanding of the battlefield on which his forces fought, while the friction and fog of war on that same battlefield prevented him from consistently achieving a state approaching decision superiority.

Half a century later, the Prussian general Von Moltke the elder displayed his own exceptional capacity for "devising means to overcome the limitations of the new instrument

¹⁶ Ibid., 75.

[telegraph] at the very time when they were exploiting its potentialities.”¹⁷ Given the size of Prussia’s army and, more importantly, the expanse of Europe over which this army was required to fight, Moltke understood the potential value of the telegraph for controlling and communicating with his various army headquarters. As leaders in the American Civil War had realized, however, the telegraph’s value for command at the front was extremely limited, as was its ability to reduce the fog of war or help improve the commander’s decision-making. To help deal with these problems, Moltke designed a General Staff superior to that of both its predecessors and its contemporaries. As evidenced by the Koeniggratz campaign of 1866 and the campaigns against France in 1870-1, Moltke’s system proved extremely successful. And yet, the primary reason for this success appears to have been that Moltke knew that information flow between his headquarters and commanders in the field would never be sufficiently fast or detailed to allow centralized command and control from the rear.¹⁸ While the General Staff ably oversaw a vast system of daily reports that provided valuable information, and while Moltke’s directed telescope of officers permanently stationed forward at the widely dispersed army headquarters provided an effective set of ears and eyes, Moltke’s real strength seems to have had its basis in his emphasis on decentralized tactical command and his understanding that the simplest of plans was often best. By accepting and anticipating uncertainty in war, he was able to better manage this uncertainty simply by “reducing the amount of information needed to perform at any given level” and building combined arms forces capable of operating independently for limited periods of time.¹⁹ Accepting that he would regularly lack information and be unable to achieve decision superiority at his level, Moltke instead chose to focus his energy on determining the proper organization of forces and deployment framework for the campaign at hand, and then trust his subordinate commanders to operate in accordance with his overall intent.

This acceptance of confusion as the normal state in war would carry over to the German

¹⁷ Ibid., 109.

¹⁸ Ibid., 146.

¹⁹ Ibid.

experience in World War I. The German response was to further decentralize operations and lower “decision thresholds” by affording greater independence to subordinate commanders and employing general staff officers as the commander’s “eyes”--the directed telescope model.²⁰

These two key elements of the German command and control system resulted not in perfect information or decision-making capability but, rather, a marked advantage over the enemy when communications and situational awareness broke down on the battlefield. By organizing and training specifically for such circumstances, German forces were able, to a point, to take advantage of the chaos and uncertainty in ways that their enemies could not.

World War I saw not only new organizational changes in an attempt to better deal with battlefield friction and uncertainty, but also witnessed the beginning of a series of significant technological improvements aimed at decreasing and eventually eliminating this uncertainty altogether. Line of sight radio sets shrunk in size with each succeeding conflict and were dispersed more and more widely throughout the battlefield, so that by the end of the twentieth century, U.S. forces down to squad level could carry radios small enough to fit in cargo pockets but powerful enough to transmit voice and data communications for miles, thereby allowing for near-instantaneous reporting of battlefield actions. Beginning with the Vietnam era, satellites and associated satellite ground terminals (both large multi-channel systems and, later, man-pack portable radio sets) allowed this near-instantaneous reporting to circle the globe among multiple headquarters with virtually no delay. Also during the Vietnam War, “command and control [C2]” helicopters first provided tactical and even operational commanders with a “birds-eye view” of the battlefield and afforded relatively rapid movement from one location to another. Variants of fixed-wing C2 aircraft were developed to provide commanders with a host of communications suites, enabling them to talk with leaders on the ground, back at home station, or in other aircraft. In the decade following the end of the Cold War, satellites, so-called “spy-planes” and various unmanned aerial vehicles (UAVs) provided commanders at all levels with intelligence snap shots

²⁰ Ibid., 172.

of troop dispositions and other activities, to increasing degrees of resolution and timeliness never before seen. And by the turn of the century, the military's digital experiments of the 1990s--exemplified by the Army's work with the 4th Infantry Division at Fort Hood, Texas--had resulted in computer networks down to low tactical echelons, tying together vast numbers of sensors, weapons systems, unit situation reports, and other information in a complex "system of systems" that would have hardly been imaginable even twenty-five years earlier.

Each technological advance had an impact on at least some aspect of the way the U.S. military fought in the second half of the twentieth century. Organizational changes in nearly every decade sought to maximize the increased maneuver, firepower, and command and control capabilities enabled by new technology. As both the technology itself and methods for effectively employing it were further developed, military leaders worked to capture these methods in doctrine while educating and training personnel to operate in accordance with that new doctrine. And yet, the increasingly sophisticated technological advances led not just to new capabilities, but to a number of new and significant challenges as well.

In Vietnam, the helicopters that enabled commanders to move so rapidly throughout the battlefield also permitted commanders at multiple levels to wield extremely powerful directed telescopes by simultaneously observing and demanding reports from company or lower level commanders engaged in firefights on the ground below. This collective desire for increased information and certainty, while potentially enabled by the technology of the helicopter, frequently had the negative impact, however, of nearly paralyzing the friendly action being monitored.²¹ Toward the end of the century, portable satellite terminals and field-hardened laptop computers would have a similar effect on operations, rapidly providing up-to-date information from field commanders directly to senior military and political leaders at all levels and locations, but also permitting these senior leaders to pass over numerous levels of command in demanding reports from or issuing guidance to those field commanders.

²¹ Ibid., 256.

Perhaps more than any other technological advancement, computers and computer networks, which grew exponentially during the last decade, impacted military warfighters. Allowing for ever-increasing amounts of data to flow between commanders and staffs at virtually all levels and making a tremendous amount of data available to commanders for use in decision making, this increasingly powerful technology led many within the highest levels of the Defense Department to see it as the critical means for finally overcoming the historical challenge of uncertainty in war. In practice, however, all of this data and technological capability did not necessarily equate to superior decision-making or battlefield execution for U.S. forces. In his recent book, *Technological Change and the Future of Warfare*, Brookings Institute strategist Michael O'Hanlon discusses numerous case studies in which U.S. technological overmatch and information superiority failed to provide a decisive advantage.²² From Vietnam to Somalia to Kosovo, simply possessing vast amounts of data and military intelligence did not always translate into decisive success when confronted with a relatively low-tech, adaptive and creative adversary. Similarly, in a 2003 paper for the U.S. Army War College's Center for Strategic Leadership, then-Army Lieutenant Colonel H.R. McMaster notes that in Somalia, for example, Marine Corps General Anthony Zinni felt that U.S. forces possessed excellent technical intelligence and information, but that U.S. sensors were unable to "penetrate the faction leaders and truly understand what they were up to."²³ That experience in Somalia clearly highlighted certain limitations of technology and served as a warning against assuming that sensors and other technical solutions could always guarantee certainty. Six years later in Operation Allied Force,

²² Michael O'Hanlon's *Technological Change and the Future of Warfare* (Washington D.C.: The Brookings Institution, 2000) critically examines the recent debate over whether the U.S. military is currently undergoing a revolution in military affairs (RMA), and provides a historical perspective on the factors that have determined success or failure in past military attempts to change. While skeptical of the overall RMA hypothesis, O'Hanlon does conclude that technological trends merit closer focus on finding ways to exploit potential capabilities in computers, communications, and associated advances.

²³ H.R. McMaster, "Crack in the Foundation: Defense Transformation and the Underlying Assumption of Dominant Knowledge in Future War" (Carlisle Barracks, PA: Center for Strategic Leadership, U.S. Army War College, November 2003), 24. As the title of his paper suggests, McMaster contends that failure to challenge the too-commonly-held assumption of dominant knowledge is, in fact, undermining the Transformation effort and may make future U.S. forces more (rather than less) vulnerable.

writes McMaster, despite having had numerous previous personal interactions with Slobodan Milosevic and knowing a great deal about Serbian forces, NATO and U.S. military leaders were unable to gain information superiority, let alone superiority in their decision-making capability. Again, the United States' clear edge in technology and information-gathering capacity failed to translate into a clear and decisive advantage over the adversary.²⁴

These and other examples have led writers such as Van Creveld to conclude that neither organizational changes nor technological advances "have significantly altered or even reduced the quintessential problem facing any command system, that of dealing with uncertainty" and assess that "[although various advances] often misled contemporaries into thinking the problem would be solved . . . in the end those hopes were invariably disappointed."²⁵ Technology, even such advanced and increasingly beneficial technology as U.S. forces employed during the 1990s, had not proven capable of ensuring commanders would make consistently superior decisions or execute superior actions during combat or operations other than war. It was from this context, as countless military leaders and strategists sought to understand this issue, that the concept of decision superiority emerged.

²⁴ McMaster, 44-5.

²⁵ Van Creveld, 268.

CHAPTER THREE

EVALUATING OPERATIONAL CONCEPTS

Military concepts describe “a method or scheme for employing specified military capabilities in the achievement of a stated objective or aim.”²⁶ In addressing a vision of operations within some future context, future concepts should logically spark debate and experimentation, and will logically evolve over time as they are validated or disproved. As the U.S. military attempts to transform itself to meet the emerging and anticipated demands of future warfare, the notion of decision superiority serves as an important underlying concept. This concept, as outlined in a variety of military concept documents and directives, essentially aims to achieve a relatively consistent state of battlespace and situational awareness in which commanders can effectively manage information in order to make and implement better decisions faster than their adversaries.

While military history clearly shows that, in many instances, one commander’s apparent ability to achieve such a state positively affected the outcome of a particular battlefield event, it is much less clear whether this state of “decision superiority” can be sustained over time and produce such large-scale positive impacts that it becomes a valid concept worth pursuing. The answer to that question holds numerous implications for future resource allocation decisions, and impacts across the spectrum of the military’s common framework for change, as expressed by the acronym DOTMLPF (Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities). Effectively evaluating the feasibility and usefulness of the decision superiority concept, then, is essential in order to ensure that intellectual, fiscal, and manpower-related resources are either properly allocated in pursuing the concept, or conserved by declaring the concept invalid.

John F. Schmitt, a retired U.S. Marine Corps (USMC) officer now working with the

²⁶ Schmitt, 3.

Defense Adaptive Red Team (DART) under contract for the Office of the Deputy Undersecretary of Defense for Advanced Systems and Concepts, recently produced a paper entitled, “A Practical Guide for Developing and Writing Military Concepts,” in which he both outlines a framework for developing military concepts and provides a set of reasoned, practical guidelines for assessing future operating concepts. Schmitt writes from the viewpoint that the recently adopted concepts-based combat development process has led to such proliferation of “operational concepts” that the term has now become “practically meaningless.”²⁷ After introducing the broader term, “operating concept,” in order to better frame various types of historical, current and future military concepts at all three levels of war, Schmitt’s paper focuses primarily on future concepts. He proposes a set of principles as well as a series of attributes for a good future operating concept; these foundational principles and attributes are intended as guidelines in developing and assessing such concepts.²⁸

Foundational Principles

“All concepts,” writes Schmitt, “are based on certain beliefs about war, and the validity of a concept depends on the soundness of those beliefs.”²⁹ Following this premise, Schmitt discusses five foundational principles with which valid operating concepts must be at least compatible. Schmitt defines his five foundations as:

1. Historical Awareness. Since “useful future concepts are rarely derived from abstract theoretical premises, but instead are speculations about the future informed by the practical lessons of the past,”³⁰ Schmitt argues that future operating concepts should reflect an awareness of military history. While certain concepts may truly be revolutionary breaks from that past

²⁷ Ibid., 1.

²⁸ While specific passages and quotations from Schmitt’s work are referenced as appropriate in the following sections of this chapter, a full account of his principles and attributes encompasses pages 12-21 of his working paper.

²⁹ Schmitt, 12.

³⁰ Ibid.

history, evolutionary change is much more likely. Understanding and appreciating military history, especially in the context of what the future operating concept promises to achieve, is valuable both in identifying emerging conditions for successful concept development and in promoting a healthy skepticism regarding “faddish” ideas masquerading as future concepts.

2. Consistent with the nature and theory of war. Just as it is important to ground future operating concepts in the context of military history, these concepts must also account for the nature of war, accepting that while some elements of war may be subject to change, others are not. Schmitt very briefly discusses the theories of Carl von Clausewitz and Sun Tzu in asserting that war is “essentially a clash between hostile, independent wills . . . not inanimate objects . . . but highly adaptive complex systems.” While quantifiable (scientific) factors in war matter, says Schmitt, so do intangibles such as surprise and boldness. The interaction between antagonists is marked by variables such as friction, uncertainty, and chance; the history of warfare to date has not recorded otherwise. A credible future operating concept, then, accounts for this nature of war and “reflects the phenomenon as it is rather than distorts the phenomenon to conform to the desires of the concept.”³¹

3. Balance between military art and science. While science has grown increasingly dominant in most aspects of human endeavor (including our approach to warfare) as a result of technological advances during the past three centuries, the need for military concept developers to balance scientific means with military art remains. As Schmitt notes, the “human factor” limits the degree to which military operations can be turned into simple scientific procedure; both art and science have (and will continue to have) an appropriate role, which must be addressed by future concepts.

4. Embedded in the proper military-technological context. Future operating concepts should be developed within the context of existing or emerging technological solutions, and should understand to the fullest degree possible the capabilities and limitations of those

³¹ Ibid., 13.

technological means the concepts are intended to exploit. Similarly, the operating concept should anticipate and account for countermeasures that an adversary would likely develop in response to a technology advance. Finally, the operating concept must recognize that warfare will almost certainly remain a clash of human wills, rather than simply becoming a contest between technologies or machines.

5. Recognition of the American approach to war. Since the way in which warfare is waged reflects larger cultural and institutional values, future operating concepts for the U.S. military must understand and be compatible with the various tendencies and predilections that make up the “American Way of War.” While Schmitt does not discount the possibility that an operating concept could propose changes to the current way of war, he argues that concepts falling too far outside currently accepted boundaries would have little chance of acceptance among those who have the power to approve and resource them.

Attributes of a good operating concept

While the five principles described in the previous section serve as foundational elements upon which to build or develop future operating concepts, Schmitt also discusses nine attributes which, while not substantive elements that must be addressed, nevertheless “tend to make for a good operating concept.” Among these attributes are the elements of relationship to other concepts, acceptance of the burden of proof, and robustness. Schmitt also notes the importance of defining a concept using clear, precise language, stated in terms that can be acted upon, as well as the value in promoting meaningful debate within the combat development process.³²

In order to achieve clarity and continuity of purpose, future operating concepts should establish relationships with other concepts in the “same general concept space,”³³ whether that relationship ties it to a subordinate or superior concept, or whether the relationship expresses an

³² Ibid., 19-21.

³³ Ibid., 20.

adjacent, competing, or superseding effect. At the same time, the future concept must reflect sufficient depth of research and be written in hypothetical terms that accept the burden of proof and allow for the fact that it is not proven truth, but, simply, a future operating concept. Over time, of course, as evidence in support of the concept's validity grows, the concept may incorporate stronger, more definitive language.

Although future concepts necessarily attempt to promote a particular vision of the future, because this vision is only a prediction, the concept must exhibit robustness by accounting for a variety of possible futures. In other words, writes Schmitt, concepts that only apply to a particular set of future circumstances generally prove very fragile and have only limited usefulness if any situation other than those narrowly defined circumstances can be shown to exist.

Operating concepts should also be expressed in clear, precise language using commonly accepted terms. In this way, the concept can be more logically presented and more easily understood. Additionally, a future operating concept should be presented as a hypothesis rather than a bold assertion, and should set up criteria both for testing its own feasibility and then driving requirements once it has been validated. Clear, precise, actionable language, then, also enables greater ease of assessing continuity over time as the concept and its associated definitions evolve.

Finally, writes Schmitt, good future operating concepts promote “open and meaningful” debate within the combat development process. This debate serves to evaluate, strengthen, and validate concepts that will eventually become accepted by the force, and to weed out those weaker concepts that are not adopted for implementation.

Assessing future operating concepts

Taken together, Schmitt's foundational principles and the attributes described in the preceding section provide a substantial, coherent checklist for evaluating and assessing future operating concepts. The foundational principles are linked by a common thread regarding the

need for balance in cognitive tension between art and science, between man and technology. At the root of these principles is Schmitt's statement that concepts are based on certain beliefs about the nature of war, including the amount of emphasis placed on technology as a critical enabler for the solution.

While acknowledging the importance of the various attributes discussed in the DART paper, this research focuses on Schmitt's foundational principles, using four of them as evaluation criteria. These four principles are:

1. "Historical Awareness"
2. "Consistent with the nature and theory of war"
3. "Balance between military art and science"
4. "Embedded in the proper military-technological context"

These four principles are all particularly relevant to the specific concept of decision superiority, and are linked in the sense that they all impact the way in which decision superiority or any other concept is expressed and understood by those who will implement or being impacted by it.

At its heart, the concept of decision superiority is tied closely to the never-ending quest for certainty in warfare, and so must be approached with a clear sense of the historical context in which this quest has taken place. As the decision superiority concept continues to evolve, its developers and proponents must find an appropriate focal point along the spectrum of information and knowledge certainty in order to strive for new, improved results while remaining in the realm of the possible. These concept developers must also consider the balance between military art and science and whether or not the decision superiority concept represents a significant shift from the traditional balance between these elements. Lastly, given that much of the recent literature regarding decision superiority discusses the significance of technological enablers, it is important to assess the degree to which the concept is embedded in the proper military-technological context. The relative importance of the "human factor" and the degree to which technology alone

can positively impact future military operations have been the subject of countless works during the past decade. Analyzing these issues within the scope of the emerging decision superiority concept provides an important measure of the concept's validity. Together, the four Schmitt principles discussed above provide a useful framework for this analysis.

The next chapter will use these four factors as evaluation criteria to both evaluate and assess the feasibility and usefulness of the decision superiority concept as it has been developed to date within the framework of the Joint Operating Concept process.

CHAPTER FOUR

ASSESSING DECISION SUPERIORITY

All concepts are based upon certain beliefs about war, and the validity of a concept depends on the soundness of those beliefs.

John F. Schmitt

“A Practical Guide for Developing and Writing Military Concepts”

Decision superiority, as described in various DoD documents, is a relatively new concept that came out of a series of Defense Science Board studies under the direction of General Larry Welch (USAF, Retired) in the mid-to-late 1990s.³⁴ Since the term first gained widespread DoD visibility in 1999, both the definition of decision superiority and the concept for achieving it have been subject to multiple changes. These changes have swung back and forth between a heavy emphasis on technology and a more balanced approach of technology and human factors. Today, while the DoD and joint community appear to have settled on a generally accepted definition of what decision superiority is, many tough questions remain regarding how (or even “if”) it can be achieved.

The Concept Emerges

In November 1999, the Defense Science Board’s Summer Study Task Force published a *Report on 21st Century Defense Technology Strategies*. This report identified three critical themes, one of which was “Information for decision superiority.” While acknowledging the value of information superiority (a concept which had gained popularity in the mid-1990s and formed an important component of *Joint Vision 2010 (JV 2010)*),³⁵ the report concluded that “understanding how to provide the information and information tools required for smarter and

³⁴ Paul K. Davis, *Effects Based Operations (EBO): A Grand Challenge for the Analytical Community*. (On line, available from <http://www.rand.org/publications/MR1477>; accessed 27 February 2004), 5.

³⁵ Joint Chiefs of Staff, *Joint Vision 2010* (Washington D.C.: Government Printing Office, July 1996). *JV2010* emphasizes the importance of gaining and maintaining information superiority over future adversaries, relying on the assumption that U.S. forces will be able to leverage their rapidly growing technological advantage in order to acquire and manage information.

faster decisions can have a more lasting impact.”³⁶ Defining decision superiority as “the ability to use information and experience to make battlespace decisions faster and better than any adversary to ensure a continuing and overwhelming pace and effectiveness of operations,” the task force noted that the concept could not only serve as a potential strategic deterrent but would also play a key role in “the efficient and rapid execution of military missions.”³⁷

While highlighting the significant potential benefits provided by the decision superiority concept, the task force also emphasized that achieving such an advantage is “a central and difficult challenge for the Department [of Defense].” This challenge stems not only from the technical aspects of achieving the objective, but more importantly from issues of human capability and understanding. The ability to gain decision superiority, stated the report, is based on two factors: “the cognitive capability and preparedness of the decision maker and the available technical tools.” From this analysis, the task force authors developed an operational architecture for decision superiority, employing a conceptual set of technological enablers to assist in the balance between the “push” of reports, products, and other information from multiple sources and the “pull” of select elements of analyzed data by the commander for his use in making a decision.³⁸ Together, the two factors described in the report highlighted the task force’s emphasis on a necessary balance between decision maker (and related human factors) and technical tools in the quest for decision superiority. This balance would come to be an important focal point in later analysis and assessments of the decision superiority concept.

Pursuing the concept of decision superiority would have significant implications not only for required technological enablers, but also for functions such as intelligence and reconnaissance, as well as unit and service organization and leader training. Ultimately, the essence of the concept was to “provide information in such a way that commanders can absorb it,

³⁶ Defense Science Board, *Summer Study Task Force Report on 21st Century Defense Technology Strategies* (Washington D.C.: U.S. Government Printing Office, 1 November 1999), iv.

³⁷ Both the definition and assessment can be found in the Defense Science Board *Summer Study Task Force Report*, viii.

³⁸ *Ibid.*, 26-28.

understand it, and use it quickly and effectively to shape their battlefield decisions” in such a way that this decision superiority would lead in turn to execution superiority.³⁹

Decision superiority and *Joint Vision 2020*

When *Joint Vision 2020* (JV2020) was published in June 2000, it clearly reflected the results of the Science Board’s report. Whereas *JV 2010* just four years earlier had addressed only the concept of information superiority, *JV 2020* highlighted the difference between the two concepts and emphasized the important role decision superiority would play in future military operations. Removing the phrase “ability to use information and experience” from the Science Board’s earlier definition, the *Joint Vision* defines decision superiority as “better decisions arrived at and implemented faster than an opponent can react, or in a non-combat situation, at a tempo that allows the force to shape the situation or react to changes and accomplish its mission.”⁴⁰

Following this definition, *JV 2020* stresses that simply possessing information superiority does not automatically lead to decision superiority, noting instead that “organizational and doctrinal adaptation, relevant training and experience, and the proper command and control mechanisms and tools are equally necessary.” In discussing joint command and control, the document expands this point further, stating that decision superiority is achieved through a combination of important factors: superior information in the hands of an experienced and trained commander applying knowledge and judgment; expertise of the commander’s staff and other supporting organizations; and an efficient set of associated decision-making processes. On an especially appropriate note, the *Joint Vision* then cautions, “while changes in the information environment have led some to focus solely on the contribution of information superiority . . . it is equally necessary to understand the complete realm of command and control decision making . . .

³⁹ Defense Science Board *Report*, 26-27.

⁴⁰ *JV 2020*, 11-12.

especially the ‘human in the loop.’”⁴¹ Finally, in discussing various aspects of this “human element,” the document reemphasizes the importance of understanding implications for decision-making processes, the training of decision makers, and organizational patterns and procedures.

Decision superiority and DoD Guidance

While *JV 2020* seems to offer a relatively balanced approach to pursuing decision superiority, highlighting the importance of both technological enablers and the human element, DoD transformation guidance documents published soon after the *Joint Vision* appear to largely disregard the human element in favor of increased emphasis on technological solutions. A transformation study report prepared for the Secretary of Defense less than a year after *JV 2020* was published identifies decision superiority as the most urgent of four key future force capabilities, but provides a set of requirements for achieving this capability that is almost exclusively focused on new or improved technologies.⁴²

Two years later, in April 2003, the Secretary of Defense’s *Transformation Planning Guidance (TPG)* emphasized that the 2001 *Quadrennial Defense Review (QDR)* goal of leveraging information technology to develop an interoperable, joint C4ISR architecture would “guarantee . . . decision superiority.” Implementation of this claim was implicitly tied primarily to improved network and intelligence capabilities for U.S. forces--technological solutions.⁴³

Finally, the initial *Joint Transformation Roadmap (JTR)*, submitted by Joint Forces Command to the DoD’s Office of Force Transformation on 3 November 2003, uses the *JV 2020* definition of decision superiority in calling it the concept that, along with information superiority, “provide[s] the foundation for all the new joint operational concepts and transformational capabilities addressed in [the] roadmap.”⁴⁴ The ability to achieve decision superiority is again

⁴¹ *JV 2020*, 37-8.

⁴² Transformation Study Group, *Transformation Study Report*, 8-11.

⁴³ Rumsfeld, *Transformation Planning Guidance*, 11.

⁴⁴ *Joint Transformation Roadmap*, 41.

labeled an “essential attribute” of future joint forces, combining battlespace awareness and command and control functions in order to enable commanders to rapidly develop courses of action, communicate decisions to subordinates, generate the required effects, assess their results, and conduct follow-on operations.

This initial discussion of decision superiority is complicated, however, when the *JTR* authors describe the concept as being “founded upon information superiority” and then go on to use the term “information / decision superiority” to describe both of these two “corollary” terms. Although decision superiority is again described as distinct from information superiority later in the document, these later portions discuss the concept almost strictly in the context of technological solutions. Decision superiority will be achieved, states the *JTR*, through the collective enabling of numerous other current or future concepts such as Joint Intelligence, Surveillance and Reconnaissance (JISR), the Collaborative Information Environment (CIE), and the Global Information Grid (GIG). JISR focuses on a network-based approach to managing and integrating the ISR functions and capabilities, in order to “reliably deliver timely, accurate, actionable intelligence to warfighters . . .”⁴⁵ Conceptually, the CIE aggregates hardware, software, and procedures to enable sharing of information and collaboration within and among commanders and their staffs.⁴⁶ And the GIG, described in the *Roadmap* as “the single most important enabler of information/decision superiority,” is essentially an all-encompassing set of “globally interconnected, end-to-end . . . information capabilities” that incorporates numerous layers of hardware, processes, standards and various network-related services.⁴⁷ These enabling concepts, however, are themselves in various stages of development; each is still unproven. Additionally, the slightly more mature Operational Net Assessment (ONA) concept has as its professed main objective the achievement of decision superiority by “rapidly converting ISR-

⁴⁵ Ibid., 110-111.

⁴⁶ Ibid., 86.

⁴⁷ Ibid., 41-2.

enabled information to actionable knowledge.”⁴⁸ And yet, while it is already employed (as both a process and a product) by Joint Forces Command (USJFCOM) and various combatant commands, there appears to be no clear doctrinal standard for what this ONA looks like or how it is to be used in achieving decision superiority. Each of the technologically focused systems which “will enable” decision superiority, then, is either unproven or still in development itself. The “foundation,” as the Roadmap calls decision superiority, has been laid upon less than stable ground.

A final aspect of the *Transformation Roadmap* involves decision superiority’s role in DoD’s current experimentation efforts. A Joint Mission Area Analysis conducted by USJFCOM in 2002 to solicit current and future threat analysis input from each of the combatant commanders identified three themes as “joint military challenges.” One of these challenges is “Achieving Decision Superiority.”⁴⁹ These challenges will drive joint concept development and experimentation. As such, decision superiority is expected to play a significant role in joint war games during the next few years. Billed as a “decision superiority wargame,” Thor’s Hammer, sponsored by USJFCOM along with U.S. Strategic Command (USSTRATCOM), U.S. Special Operations Command (USSOCOM), and the National Reconnaissance Office (NRO), was scheduled to take place in late February 2004.⁵⁰

Decision superiority and Evolving Joint Concepts

Just as decision superiority serves as a foundational element for the *Joint Transformation Roadmap*, the initial *Joint Operations Concept (JOpsC)*, published in November 2003, treats decision superiority as both a key attribute of future joint forces and a critical enabler for the achievement of full spectrum dominance. The *JOpsC* serves as an overall concept for the conduct of future joint military operations and defines the construct for the development of

⁴⁸ Ibid., 117.

⁴⁹ Ibid., 147.

⁵⁰ Ibid., 149.

subordinate operating, functional and enabling concepts. Following from the earlier *Transformation Planning Guidance* and *Joint Transformation Roadmap*, the *JOpsC* was designed to provide a unifying conceptual framework that guides operations, concept development, experimentation and, ultimately, funding and acquisition across the DOTMLPF spectrum.

While decision superiority is clearly recognized within the *JOpsC* as both an attribute and enabler, much as in the *Transformation Roadmap* the concept is discussed almost exclusively in the context of technological advances. In the section on Full Spectrum Dominance, the document states, “To meet these future operational aims, the Joint Force will leverage technology to provide actionable, precise, ‘fused’ intelligence at all levels of war to facilitate decision superiority.”⁵¹ Other references to decision superiority within the document address the concept almost solely in relation to information superiority and the technological solutions expected to result from JISR, the CIE and the GIG. The clear implication is that it is technology that will enable decision superiority, and that decision superiority will, in turn, be a critical enabler for the Joint Force to achieve full spectrum dominance.

This conclusion, however, does not appear to have carried over into the *JOpsC*’s supporting documents—the four Joint Operating Concepts (JOCs), the five Joint Functional Concept areas, and various Enabling Concepts. The four JOCs, which are intended to further develop key areas of the *JOpsC* and provide more measurable detail for evaluators, are: Major Combat Operations (MCO), Stability Operations, Homeland Security (HLS), and Strategic Deterrence. The five Functional Concepts are: Joint Command and Control (JC2), Battlespace Awareness, Force Application, Focused Logistics, and Protection. While each of these documents currently remains in draft form at some stage of development, a closer look at some of them provides an interesting perspective on the degree to which decision superiority seems to be truly understood, accepted, and incorporated into the ongoing Defense Transformation effort.

⁵¹ Joint Chiefs of Staff, *Joint Operations Concepts (JOpsC)* (Washington D.C.: U.S. Government Printing Office, November 2003), 9.

While an early action officer-level draft of the *MCO JOC* devoted extensive space to a discussion of the decision superiority concept and its implications, just six months later the latest version of that same *MCO* fails to include even a single mention of the term.⁵² The current draft of the *Stability Operations JOC* offers only a single, nearly insignificant mention of “decision superiority,”⁵³ while the *Homeland Security JOC* also includes only one comment on the concept, noting simply that it is enabled by information superiority.⁵⁴ *JC2 Functional Concept* version 0.7, dated 31 October 2003, takes a different approach, never using the term “decision superiority,” but including many references to “superior decision making,” which it defines as “leadership and supporting capability to generate alternative actions, identify selection criteria, and assess alternatives to control operational situations.” This superior decision making, states the document, “includes the use of automation [emphasis added].”⁵⁵ Unlike the various *JOCs*, this version of the *JC2* document emphasizes a balanced approach to superiority in the decision-making realm. Given the widely differing treatments of the decision superiority concept among the many related DoD Transformation and concept development documents discussed above, two themes are readily apparent. First, a complete and common understanding of decision superiority and how it fits into the overall DoD vision of future military operations does not appear to exist among the many agencies and echelons involved in Transformation. Second, despite this lack of consensus on what the concept is, there appears to be a growing tendency on the part of many

⁵² United States Joint Forces Command, *Major Combat Operations Joint Operating Concept*, Version 0.1, Action Officer-Level Draft Concept Paper, 7 August 2003, and Joint Chiefs of Staff, *Major Combat Operations Joint Operating Concept*, Version 1.03, 25 February 2004, differ substantially in their approaches to the decision superiority concept. The early version took a relatively balanced position on how the concept could be realized, while the latter draft places a heavy emphasis on technology to achieve information superiority and better decision making.

⁵³ Joint Chiefs of Staff, *Stability Operations Joint Operating Concept* (Washington D.C.: U.S. Government Printing Office, version 0.95, 19 February 2004), 41.

⁵⁴ U.S. Northern Command (USNORTHCOM), *Department of Defense Homeland Security (HLS) Joint Operating Concept* (Washington D.C.: U.S. Government Printing Office, February 2004), 28.

⁵⁵ Joint Chiefs of Staff, *Joint Command and Control Functional Concept* (Washington D.C.: U.S. Government Printing Office, version 0.7 Working Paper, 31 October 2003), A-5 and S5-S8. Envisioning joint C2 in 2015, this document foresees networked organizations using collaborative tools to quickly access and share intelligence and other information in order to improve the speed and quality of decisions. Not only will U.S. forces decision cycles be faster than “any” adversary, but this improved capability will provide the opportunity to make proactive decisions to better shape the battlespace.

within DoD to consider decision superiority almost strictly within the context of improving technologies without accounting for relevant associated human factors.

Evaluating the Concept

What exactly, then, is decision superiority? Is it a useful concept for the DoD to pursue? If so, how feasible is this concept? While the degree to which military and civilian leaders within the DoD may have asked these and other hard questions during the past five years is unclear, John Schmitt's DART paper discussion of foundational principles that should be associated with developing any military concept provides a helpful framework for addressing the issues. Among the principles that Schmitt defines are four that will serve as evaluation criteria for analyzing and assessing the utility and feasibility of the decision superiority concept: "historical awareness," "consistent with the nature and theory of war," "balance between military art and science," and "embedded in the proper military-technological context."

Schmitt writes that a system of fundamental beliefs, either expressed explicitly or implicit, forms the foundation for any future operating concept. He then asserts that, "Some attributes of war may change, but others are immutable." From this point, he concludes that future concepts must successfully capture those attributes that are subject to change without violating those that are not. Unless concept developers are willing and able to convincingly explain how a particular concept changes war's nature, that concept must be expressed and pursued in ways that conform to the true nature and theory of war.⁵⁶

During the past seventy or so years, the U.S. military's doctrine and approach to war has come to be heavily influenced by the early-nineteenth century theorist Carl von Clausewitz. His classic *On War* describes war as a clash between two living forces, each trying to forcefully compel the other to do its will. Each force is a complex, adaptive system capable of intelligent and independent thought; the result, writes Clausewitz, is that "he dictates to me as much as I

⁵⁶ Schmitt, 13.

dictate to him.”⁵⁷ From this beginning, Clausewitz goes on to further describe war as extremely complex and unpredictable, characterized by uncertainty, friction, and random chance.

Numerous factors, to include political concerns, cultural considerations, and other human factors, interact to make war such a complex and unpredictable endeavor. War, writes Clausewitz, “is the realm of uncertainty; three quarters of the factors . . . are wrapped in a fog of greater or lesser uncertainty.”⁵⁸ His understanding of these complex interactions led Clausewitz to emphasize the importance of commanders who would account for the “human factor,” embrace the uncertainty, and summon great courage and self-confidence to use this uncertainty to their advantage.⁵⁹

Much of the literature surrounding the decision superiority concept, however, paints a starkly different picture of uncertainty in warfare. Although *JV 2020* briefly acknowledges that “information superiority [and, by extension, decision superiority] neither equates to perfect information, nor does it mean the elimination of the fog of war,” it moves immediately from this caution to restating the fundamental importance of information superiority and claiming that “the joint force of 2020 *will* use superior information and knowledge to achieve decision superiority [emphasis added].”⁶⁰ While admittedly claiming only that the conduct of war (not its nature) is changing, the *Joint Vision*’s strongly worded statements regarding the promised results of technology and technical innovation set the stage for subsequent documents to move closer to a altered view of war’s actual nature. As a result, the relatively balanced discussion of decision superiority in the *Joint Vision* would become an increasingly techno-centric concept. Less than a year after *JV 2020*’s publication, the *Transformation Study Report* for the Secretary of Defense proposed a series of technological solutions to fill in the capabilities gaps preventing the U.S. from achieving decision superiority.⁶¹ In response, the 2003 *DoD Transformation Planning*

⁵⁷ Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 77.

⁵⁸ Clausewitz, 101.

⁵⁹ *Ibid.*, 86.

⁶⁰ *JV 2020*, 12-13.

⁶¹ Transformation Study Group, *Transformation Study Report*, 8.

Guidance boldly asserted that the future Joint C4ISR architecture would “guarantee our combat leaders decision superiority.”⁶² In just over three years, decision superiority evolved from a relatively new concept balanced between technology and human factors to a guarantee based on a technologically-enabled network architecture. Meanwhile, the long-standing challenge of uncertainty for U.S forces in war was increasingly minimized by the documents touting decision superiority and other joint concepts. Technology would lead to certainty: sensors would provide ever-increasing amounts of information, networks and collaborative tools would analyze and filter information to enable superior decisions, and these decisions would translate into superior actions and full spectrum dominance. While recent history supports related claims that the *conduct* of war has changed in the past decade as a result of technological advances, the claim that further advances will change the *nature* of war and enable decision superiority to consistently overcome uncertainty is an entirely different matter.

In a 2002 *Landpower Essay* for the Association of the United States Army’s (AUSA) Institute of Land Warfare (ILW), Major General James M. Dubik poses the question, “Has warfare changed?” Carefully distinguishing between the conduct of war and the nature of war, he argues that while the former has always changed as a result of the “tools” available in a given historical period, the latter has been, is, and will remain constant. Noting that, “some have been fooled into believing that the nature of war is changing [as a result of technology],” Dubik strongly cautions that “such belief is false [and] also dangerous . . . for it seduces the believer into making decisions and taking action that may not achieve their intended outcomes.” Drawing upon Clausewitz and others, he then presents ten propositions to support his contention that war’s nature is constant. One of these is the proposition that “War is inherently ambiguous.”⁶³

Dubik’s cautions, coupled with Clausewitz’s still timely characterizations of warfare, are extremely valuable for joint concept developers as they wrestle with decision superiority. If, as

⁶² Rumsfeld, *Transformation Planning Guidance*, 11.

⁶³ James M. Dubik, “Has Warfare Changed? Sorting Apples from Oranges” (*Landpower Essay*, AUSA Institute of Land Warfare, July 2002), 2-3.

the *Joint Transformation Roadmap* states, decision superiority is the foundational concept for all other emerging joint concepts and capabilities, it is absolutely critical that this foundation be a solid one. For the present, however, DoD literature on the decision superiority concept does not appear to adequately consider the true nature of war.

Just as early draft concept documents failed to adequately acknowledge accepted theory and nature of war in framing the decision superiority concept, the developers and writers also exhibit an improper understanding of military history and its lessons. Schmitt argues that “useful future concepts are rarely derived from abstract theoretical premises, but instead are speculations about the future informed by the practical lessons of the past,”⁶⁴ the implication being that any future concept should “reflect an understanding of its own evolution and antecedents.”⁶⁵ In the realm of certainty and military decision-making, a study of military history clearly shows that alleviating fog and uncertainty, and attaining decision superiority, has always been an elusive goal. From Napoleon to von Moltke the elder, from the U.S. Civil War to Operation Desert Storm, military leaders have consistently sought the means to make better decisions and implement those decisions before their adversary could react. Especially during the past two centuries, constantly improving technologies have offered numerous promises of solutions to the problem of uncertainty. Today, leaders engaged in Operations Enduring Freedom and Iraqi Freedom continue to strive for the same thing, employing the latest and greatest technological advances in an attempt to reach that goal. In every case however, historical or present-day, this quest for certainty has remained unfulfilled.

As discussed in earlier examples such as the American experience in Vietnam, Somalia, and Kosovo, it is clear that even where technology offers tremendous promise, history has consistently shown three things: (1) the relative advantages associated with a technology do not last forever; (2) improvements in technology create their own limitations and vulnerabilities; and

⁶⁴ Schmitt, 12.

⁶⁵ Ibid., 13.

(3) even vastly superior technology does not always lead directly to decisive success. While isolated instances of local, fleeting “decision superiority” can almost surely be found within recent and on-going U.S. operations, it is equally clear that all of this technology and associated changes across the DOTMLPF construct still has not provided U.S. military leaders with a reliable means for consistently achieving true decision superiority.

This paradox is not new. For Napoleon, the directed telescope provided by his aides-de-camp gave him better access to more information than he would otherwise have had, and likely enabled him to make better decisions with regard to that additional information. Still, the sheer size of his operational area, coupled with the significant communications limitations of his time, prevented him from ever truly achieving a state of decision superiority. Instead, he relied on the experience and judgment of his subordinates, as well as his own sense of battlefield awareness, to make decisions. Von Moltke, faced with even larger battlefields and military forces that overcame the benefits of improved communications capabilities in the late 1800s, focused heavily on the preparations for conflict, and then relied upon mission orders and the well-informed initiative of subordinate commanders to achieve success. Any contemporary concept of decision superiority played a very small role in Prussian successes during this time period. More recently, the history of twentieth century warfare leads to many similar conclusions. As Dubik claims, “war is inherently ambiguous . . . the fog of war can be made thinner via integrated information technologies, but the fog will never be lifted fully.”⁶⁶ Van Creveld’s points regarding the constancy of uncertainty in war and the inability of technological advances to overcome this uncertainty remain valid.

Nevertheless, enough significant technological improvements (especially in the areas of firepower and command and control) have occurred in the years since the Cold War ended to convince a number of DoD leaders to envision future conflict as much more certain than ever before. H.R. McMaster notes that in the late 1990s, “despite the [explicit] qualifiers [in *JV 2010*],

⁶⁶ Dubik, 3.

the Department of Defense and each of the services embraced certainty as a condition of future war and the basis for transformation efforts.”⁶⁷ The same could be said of the period following the 2000 publication of *JV 2020*. The 2003 *Transformation Planning Guidance*’s “guarantee” of decision superiority enabled by information technology and other innovative concepts, along with similar statements about the concept in other DoD documents, reflect an apparent disregard for the lessons of history. As currently put forth, then, the decision superiority concept fails to properly account for the historical context in which it has been developed.

The primary reason for this shortcoming is undoubtedly the ever-increasing temptation to trust in technological advances as the most important (if not the only) solution for the problem of uncertainty. In Schmitt’s estimation, future concepts must “envision new ways of operating within technologies that are likely to exist,” while keeping in mind both potential adversary countermeasures and the fact that the human dimension plays a crucial role alongside technology.⁶⁸ As it has been expressed to date, the decision superiority concept does a relatively good job of accounting for technology as it is projected and likely to be available in the next ten-to-fifteen years. What is much less realistic, though, is the degree to which the concept proposes that technology, by itself, will enable decision superiority.

Throughout DoD Transformation and concept documents, decision superiority is consistently discussed in conjunction with information superiority as well as related emerging concepts such as JISR, the CIE, and the GIG. Each of these related concepts, in turn, is absolutely reliant for success on unproven or undeveloped networking capabilities, collaboration tools, or some other technological advance. Much of the associated hardware is likely to exist within the *JV 2020* timeframe; that issue will simply be one of degree. Collaboration software tools and other related conceptual developments will likely prove a greater challenge; perhaps the

⁶⁷ McMaster, 30.

⁶⁸ Schmitt, 14.

greatest concern is that the capabilities needed for decision superiority and promised in various documents are unrealistic, if not sheer fantasy.

Even prior to the publication of *JV 2010* in 1996, Admiral William Owens was one among many within DoD making extremely bold claims on the subject, asserting that, “technology could enable U.S. military forces in the future to lift the ‘fog of war’ . . . [and to] see and understand everything on the battlefield . . .”⁶⁹ The “system of systems” mentioned by Owens and currently described in joint concept literature would serve to translate collected data into actionable information or intelligence, analyze this information and help commanders translate it into knowledge, and then facilitate better, faster decisions, resulting in decision superiority. Given the extent of microprocessor advances in the past few years, it is certainly possible that future advances will continue to provide more data to commanders and staffs faster than ever before. As the United States’ relative technological advantage over its potential adversaries grows even larger, the likelihood of future U.S. forces routinely achieving information superiority also increases. But while conceptual discussions such as those in the *Joint Transformation Roadmap* would appear to indicate that routinely achieving decision superiority is also likely for U.S. forces in the near future, a much more likely scenario goes back to the *JV 2020* caveat that “decision superiority does not automatically result from information superiority.”⁷⁰

The network-centric framework upon which the DoD Transformation effort rests potentially offers many significant benefits for the future force. This framework, however, also contributes to a flawed view of the military-technological context in which Transformation is occurring. The overarching *Joint Operations Concepts* document adopts the language of network-centric operations not just for discussing future U.S. capabilities, but also in

⁶⁹ Williamson Murray, “Clausewitz Out, Computer In: Military Culture and Technological Hubris” (*The National Interest*, 1 June 1997, (on line); available from <http://www.clausewitz.com/CW2HOME/Readings.htm>; accessed 25 February 2004), 8.

⁷⁰ *JV 2020*, 12.

characterizing potential adversaries, reducing them to systems, made up of nothing more than “links and nodes.”⁷¹ Williamson Murray, in a recent article for *The National Interest*, writes about this school of thought, “What is dangerous about the new technocratic view is the same thing that was dangerous about the older [Vietnam era] version: It is wholly disconnected from what others [adversaries] think, want, and can do.”⁷² Considering only the technological aspects related to decision superiority, while disregarding relevant human factors, not only fails to embed the concept in a proper military-technological context, but also again fails to adequately consider either the lessons of history or the nature of war itself.

During the past few years, both academic and Defense Department literature about future warfare and military operations other than war have placed an increasingly heavy emphasis on the likelihood of U.S. forces facing irregular adversaries in unconventional conflicts. The very term “*irregular warfare*” indicates something unusual in the nature of these conflicts; thus it should be no surprise that these same conflicts also generally involve a greater degree of uncertainty for U.S. forces, regardless of the advanced technology the U.S. brings to the battlefield. These “irregular” enemies are typically described as (and also prove themselves to be) creative, flexible, adaptive, and unpredictable. These characteristics, shared among a significant number of potential adversaries throughout the globe, present U.S. forces with an even greater challenge in gaining and maintaining sufficient relevant and timely knowledge about a given enemy and his intentions, and therefore make the prospect of achieving decision superiority even more daunting.

Today, on-going operations in both Afghanistan and Iraq highlight the absolutely essential need to consider human factors in addition to technology when allocating resources in pursuit of concepts such as decision superiority. Nearly a year after combat operations began in Iraq, military analyst Robert Maginnis (a retired Army lieutenant colonel) summed up U.S.

⁷¹ *Joint Operations Concepts*, 11. For a related analysis of the *Joint Operations Concepts* and supporting Joint Operating and Joint Functional Concepts, see H.R. McMaster’s “Crack in the Foundation,” 5-12.

⁷² Murray, “Clausewitz Out, Computer In: Military Culture and Technological Hubris,” 8.

challenges in dealing with terrorism and insurgent acts in the country by stating, “Our strength has always been electronic intelligence and, unfortunately, this is a war of person-to-person.”⁷³ Operations Enduring Freedom and Iraqi Freedom also show that even though the United States already possesses an overwhelming degree of technological superiority over many adversaries in terms of precision weapons, command and control, and other systems, this advanced technology has not translated into consistent decision superiority. Contrary to Admiral Owens’ assessment of technology and the fog of war, Major General Dubik’s assertion rings much more clearly. While improved technology may certainly thin the fog of war, that technology will never be able to completely lift or disperse it. In other words, “ambiguity can be reduced but not eliminated--not as long as one fights other human beings.”⁷⁴

Given the nature of war and the historical context in which current conflicts are fought, it is very likely that the technological limitations discussed above will continue. Striking a proper balance between military art and science, then, in developing concepts such as decision superiority takes on an even greater importance. Unfortunately, assessing the degree to which the decision superiority concept fits this balance is extremely difficult because of the varied ways in which the concept has been discussed over the past four years. Both the 1999 Defense Science Board *Report* and *Joint Vision 2020* state very clearly that decision superiority entails a combination of superior information and experience, knowledge, training and judgment on the part of the commander. Achieving decision superiority, then requires not just information superiority but associated changes in areas such as organization and training as well. DoD’s *Transformation Planning Guidance* and early joint concept papers began altering this view, however, by increasingly focusing on technological enablers to support the concept. Meanwhile, the most recent versions of both the four *JOCs* and joint functional concepts maintain this emphasis on technological solutions, but do not even address decision superiority directly. As

⁷³ Rowan Scarborough. “U.S. Adjusts to ‘Changing’ Tactics of Iraqi Rebels,” *The Washington Times*, (8 March 2004), 3.

⁷⁴ Dubik, 3.

noted earlier, this last point may be an indication that DoD concept developers now recognize the tremendous challenges associated with pursuing the decision superiority concept and are reassessing their previous assumptions on the subject. Alternatively, the absence of the term may indicate a lack of a common vision or simply a lack of coordination and cohesion among the many agencies involved in joint concept development.

The decision superiority concept clearly remains an important part of the DoD Transformation process. Ironically, though, the concept appears to be in a state of flux as a result of inconsistency and uncertainty regarding its place within the overall Joint Requirements Oversight Council (JROC) program for joint concept development. Nearly five years after the Defense Science Board first recommended it be developed as a future concept there is still no formal, collective agreement as to exactly what decision superiority is or what it means for the future force. Even the definition remains a work in progress: although the *JV 2020* version has gained widespread acceptance, it still has not been included in the *DoD Dictionary of Military and Associated Terms* or appeared in any approved joint doctrine manual.⁷⁵

This last point is probably fortuitous, though, because decision superiority in its present form is still far from being a truly feasible or useful concept for the DoD. The decision superiority concept does not adequately account for either the true nature of war or the lessons of history, nor is it embedded in the proper military-technological context. How the concept evolves in the near future will likely be determined by the ability of concept developers and DoD decision makers to achieve increased clarity with regard to its definition and implications, and to reconcile the shortcomings discussed above with criteria such as those offered by Schmitt.

⁷⁵ As of early March 2004, the term “decision superiority” is used in only one joint publication, the 9 May 2003 2nd draft of *Joint Publication 6-0, Doctrine for Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations*. This draft states that once *JP 6-0* is approved, the term and its definition will be included in *JP 1-02*, the *DOD Dictionary of Military and Associated Terms*.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

As happened in Napoleon's day, that army proved superior which had recognized the *limitations* of the technical means at its disposal and, rather than allow those limitations to shape and confine its methods of waging war, had found a way to go around them, even to make use of them.

Martin Van Creveld, *Command in War*

Conclusions

The ideal of decision superiority and the closely related quest for certainty are certainly relevant and timely objectives, still as worthy of pursuit today as they have been throughout history. The United States should continue developing and exploiting technology in an effort to improve the military's ability to acquire, process, manage, and share information and to provide commanders with better situational awareness during operations. Improved information and situational awareness, however, do not equate to decision superiority, nor do they remove uncertainty from the battlefield.

Analysis of the many DoD documents related to the concept indicates a general acknowledgement of the initial *JV 2020* definition of decision superiority, but no formal recognition of the term by inclusion in joint doctrine. More importantly, the analysis in this monograph has shown that gaining a clear understanding of exactly what decision superiority is, and how it will be achieved, is difficult. The most recent *Joint Vision (JV 2020)* describes the concept as a state of better, faster decision making reached through a combination of technological enablers, organizational and C2 structure changes, and various human factors, while the current *Transformation Planning Guidance* addresses it predominantly in the context of technological solutions. The *JOpsC*--the capstone document on joint concept development--labels decision superiority a key attribute of the future joint force and notes its elemental

importance in meeting the goal of full spectrum dominance, but the nine supporting *JOCs* and joint functional concepts scarcely mention the term.

This confusion undoubtedly stems in large part from the cognitive tension between heavy reliance on technology and acknowledgment that human factors also play a crucial role in the conduct of war. Because there is not widespread agreement on this issue within the DoD, competing viewpoints work constantly to influence the way in which decision superiority is portrayed. This tension has the potential to play a valuable role in the concept development process, ensuring that assumptions are challenged and concepts put through an informal crucible of testing in order to strengthen and validate them. Unfortunately, in the case of the decision superiority concept, cognitive tension has instead had two significantly negative impacts. First, the tension has found its way into formally approved and draft concept documents alike, exposing a lack of clarity in the DoD vision. Second, the tension has not been effective in challenging concept developers to properly account for such critical considerations as the nature of war or the lessons of history. Despite *JV 2020*'s initial discussion of human factors and their crucial importance in achieving decision superiority, DoD papers published since June 2000 have presented a largely one-sided view of the subject that relies on both current and promised future technology to provide the solutions that will lead to decision superiority for U.S. forces.

As a result, the decision superiority concept in its current state is neither feasible nor particularly useful for the U.S. military. A more balanced approach to the problem of uncertainty, one that emphasizes human factors as strongly as technological enablers, accounts for and accepts both the nature of war and historical lessons, and provides a proper mix of military art and science, would result in a more realistic and potentially beneficial concept for further development within the ongoing DoD Transformation.

Three developments during the past six months do suggest that the overall conceptualization of decision superiority may in fact be changing. First, the latest drafts of the four *JOCs* and five joint functional concept documents, while continuing to focus on an effects-

based approach to operations, largely enabled by technology and capabilities such as collaboration and “pervasive knowledge,” now include a greater emphasis on “develop[ing] resourceful leaders” who “use mission orders throughout the chain of command” as the prime enablers for obtaining such results.⁷⁶ This verbiage suggests an increased acceptance of uncertainty in war and an acknowledgement that leaders must be trained and prepared to deal with that uncertainty, rather than relying on constant decision superiority to gain the advantage over adversaries. Second, daily operations in both Afghanistan and Iraq have served to remind both DoD leaders and concept developers at all levels of these realities of war and the extreme challenges inherent in attempting to achieve even a small degree of decision superiority or certainty about the situation. Finally, one of the primary “big ideas that need to go forward” submitted by CENTCOM officials for the Thor’s Hammer wargame after action review (AAR) the last week of February 2004, was that, “DS [decision superiority] is not technology driven--it is human factors driven.”⁷⁷ Should further development of these trends result in the decision superiority concept swinging back toward a closely balanced mix of technology and human factor influences, the concept may become more feasible and useful than it currently is.

Recommendations

This study first recommends that DoD officials and other agencies involved in the development of the decision superiority concept acknowledge that the concept as it currently exists is not a sound foundation upon which to build other components of the Transformation effort. While the three situations discussed above may serve as a starting point for this acknowledgement, without consensus among all key players, the cognitive tension discussed

⁷⁶ Joint Chiefs of Staff, *Major Combat Operations Joint Operating Concept* (Washington D.C.: U.S. Government Printing Office, Version 1.03, 25 February 2004), iv, 22-29.

⁷⁷ U.S. Joint Forces Command, Thor’s Hammer 2004 After Action Review (25 February 2004), slide 18 of 25.

earlier will inevitably continue to negatively impact the concept development process and leave decision superiority unfeasible and less than useful.

Despite the existing concept's problems, superior decision-making and reduced uncertainty are certainly ideals worth continued pursuit. The current decision superiority concept, however, must be re-looked and brought into proper alignment with the principles put forth by Schmitt in his DART paper. Observations and lessons from recent operations in Afghanistan and Iraq should be carefully examined as part of putting the decision superiority concept in its proper historical context. Additionally, as part of more fully acknowledging the nature of war, the decision superiority concept should continue moving toward a balance between technology and human factors, and place increased emphasis on issues such as studying and teaching decision-making processes and training leaders to deal with uncertainty while still making effective decisions. Simply tying decision superiority to a collaborative network of enhanced sensors and common relevant picture capabilities is not enough.

The Joint Staff and U.S. Joint Forces Command should highlight this new approach to decision superiority in the 2004 *Joint Transformation Roadmap*,⁷⁸ and should also provide guidance to other appropriate agencies to ensure that the revised decision superiority concept is properly addressed in the supporting Joint Operating Concepts and Joint Functional Concepts. Only by presenting a coherent, common definition of, and conceptual plan for, decision superiority across the entire spectrum of supporting concepts can the revised decision superiority concept effectively serve as the foundational element of transformation that the *2003 Roadmap* claims it is.

The *Joint Operations Concept* paper concludes with the statement, "implementation of the *JOpsC* will result in transformational changes to meet the President's challenge: 'Every dollar of defense spending must meet a single test: It must help us build the decisive power we will need

⁷⁸ The 2003 version of the *Transformation Roadmap* specifies that a revision will be published not later than 1 November 2004.

to win the wars of the future.’’⁷⁹ Re-addressing the concept of decision superiority in the ways recommended here will serve as an important first few steps along the road to meeting that same challenge. Accepting the uncertain and unpredictable nature of war, understanding both the relative importance of various human factors and the inherent limitations of any technology in dealing with and overcoming this uncertainty, and developing a concept for decision superiority that accounts for all of these factors while prudently leveraging technological solutions is the surest way to future success in military operations.

⁷⁹ *Joint Operations Concept*, 26.

BIBLIOGRAPHY

Books

- Alberts, David S., John J. Garstka, and Frederick P. Stein. *Network Centric Warfare*. Washington, D.C.: C4ISR Cooperative Research Program, 1999.
- Alberts, David S., John J. Garstka, Richard E. Hayes, and David A. Signori. *Understanding Information Age Warfare*. Washington, D.C.: C4ISR Cooperative Research Program, 2001.
- Arquilla, John, and David Ronfeldt, eds. *In Athena's Camp: Preparing for Conflict in the Information Age*. Washington D.C.: RAND National Defense Research Institute, 1997.
- Betts, Richard K. ed. *Conflict after the Cold War*. New York, New York: Pearson Education Inc, 2002.
- Clausewitz, Carl von. *On War*. Edited and translated by Michael Howard and Peter Paret. Princeton, New Jersey: Princeton University Press, 1976.
- Davis, Paul K. *Effects Based Operations (EBO): A Grand Challenge for the Analytical Community*. On line, available from <http://www.rand.org/publications/MR1477>; accessed 27 February 2004.
- Hall, Wayne Michael. *Stray Voltage: War in the Information Age*. Annapolis, Maryland: Naval Institute Press, 2003.
- Matthews, Lloyd J. *The Future of the Army Profession*. Boston, Massachusetts: McGraw-Hill, 2002.
- McKnight, Clarence E. LTG(Ret). *Control of Joint Forces – A New Perspective*. Fairfax, Virginia: AFCEA International Press, 1989.
- O'Hanlon, Michael. *Technological Change and the Future of Warfare*. Washington D.C.: The Brookings Institution, 2000.
- Owens, Bill. Admiral(Retired), with Ed Offley. *Lifting the Fog of War*. New York, New York: Farrar, Straus and Giroux, 2000.
- Potts, David, ed. *The Big Issue: Command and Combat in the Information Age*. London, UK: Strategic and Combat Studies Institute, 2002.
- Rochlin, Gene I. *Trapped in the Net: The Unanticipated Consequences of Computerization*. Princeton, New Jersey: Princeton University Press, 1997.
- Sun Tzu. *The Art of War*. Translated by Ralph D. Sawyer. Boulder, Colorado: Westview Press, 1994.
- Turabian, Kate L. *A Manual for Writers of Term Papers, Theses, and Dissertations*, 6th ed. Chicago: University of Chicago Press, 1996.
- Van Creveld, Martin. *Command in War*. Cambridge, Massachusetts: Harvard University Press, 1985.
- _____. *The Transformation of War*. New York, New York: The Free Press, 1991.

Journals, Newspapers, and Periodicals

- Association of the United States Army (AUSA). "Knowledge Warriors: Fighting tomorrow's battles today." *AUSA News* (October 2003).
- Dubik, James M. "Has Warfare Changed? Sorting Apples from Oranges." *Landpower Essay, Institute of Land Warfare* (No. 02-3, July 2002).
- Hammonds, Keith H. "The Strategy of the Fighter Pilot," *Fast Company*, (June 2002), (on line); available from <http://www.fastcompany.com/online/59/pilot.html>; accessed 15 October 2003.
- Kipp, Jacob W. and Lester W Grau. "The Fog and Friction of Technology." *Military Review* LXXXI, no. 5 (September-October 2001): 88-97.
- Murray, Williamson. "Clausewitz Out, Computer In: Military Culture and Technological Hubris." *The National Interest* (1 June 1997) (on line); available from <http://www.clausewitz.com/CW2HOME/Readings.htm>; accessed 25 February 2004.
- Scales, Robert H. Jr. "Adaptive Enemies: Achieving Victory by Avoiding Defeat." *Joint Forces Quarterly* (Autumn/Winter 1999-2000): 7-14.
- Scarborough, Rowan. "U.S. Adjusts to 'Changing' Tactics of Iraqi Rebels." *The Washington Times*, (8 March 2004): 3.

U.S. Government Documents

- Defense Science Board. *Summer Study Task Force Report on 21st Century Defense Technology Strategies*. Washington D.C.: U.S. Government Printing Office, 1 November 1999.
- Joint Chiefs of Staff. *Concept for Future Joint Operations: Expanding Joint Vision 2010*. Washington D.C.: U.S. Government Printing Office, May 1997.
- _____. *Joint Publication 1-02, DOD Dictionary of Military and Associated Terms*. Washington D.C.: U.S. Government Printing Office, as amended through 17 December 2003, 12 April 2001.
- _____. *Joint Publication 3-0, Doctrine for Joint Operations*. Washington D.C.: U.S. Government Printing Office, 10 September 2001.
- _____. *Joint Publication 6-0, Doctrine for Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations*. Washington D.C.: U.S. Government Printing Office, 2nd draft, 9 May 2003.
- _____. *Joint Vision 2010*. Washington D.C.: U.S. Government Printing Office, July 1996.
- _____. *Joint Vision 2020*. Washington D.C.: U.S. Government Printing Office, June 2000.
- _____. *Joint Command and Control Functional Concept* (Version 0.7 Working Paper). Washington D.C.: U.S. Government Printing Office, 31 October 2003.
- _____. *Joint Operations Concepts*. Washington D.C.: U.S. Government Printing Office, November 2003.
- _____. *Major Combat Operations Joint Operating Concept*. Washington D.C.: U.S. Government Printing Office, Version 1.03, 25 February 2004.

- _____. *Stability Operations Joint Operating Concept*. Washington D.C.: U.S. Government Printing Office, Version 0.95, 19 February 2004.
- Rumsfeld, Donald H. *Transformation Planning Guidance*. Washington D.C.: U.S. Government Printing Office, April 2003.
- Transformation Study Group. *Transformation Study Report Executive Summary*. Washington D.C.: U.S. Government Printing Office, 27 April 2003.
- U.S. Joint Forces Command, *Joint Transformation Roadmap*. Suffolk, Virginia, 3 November 2003.
- _____. *Major Combat Operations Joint Operating Concept*, Suffolk, Virginia, Version 0.1 Action Officer-Level Draft, 7 August 2003.
- _____. *Rapid Decisive Operations White Paper*. J9 Joint Futures Lab, July 18, 2002.
- U.S. Northern Command (USNORTHCOM) Strategy Division (J5S). *Department of Defense (DOD) Homeland Security (HLS) Joint Operating Concept (JOC)*. Washington D.C.: U.S. Government Printing Office, February 2004.

Theses, Studies, and Other Papers

- Defense Adaptive Red Team (DART), “DART Review of Joint Operating Concepts and Joint Functional Concepts: Findings from Content Review Workshop 30 September–2 October 2003,” Hicks and Associates, Arlington, Virginia, 13 October 2003.
- Ebel, Todd J., “Heating Up the Argument--A Look at Friction and the Soundness of the Rapid Decisive Operations (RDO) Concept.” School of Advanced Military Studies, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, May 2003.
- Griffin, Gary B., LTC, USA, “The Directed Telescope: A Traditional Element of Effective Command,” Combat Studies Institute, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, July 1991.
- McMaster, H.R., “Crack in the Foundation: Defense Transformation and the Underlying Assumption of Dominant Knowledge in Future War.” Center for Strategic Leadership, U.S. Army War College, Carlisle Barracks, Pennsylvania, November 2003.
- Schmitt, John F., “A Practical Guide for Developing and Writing Military Concepts.” Draft Defense Adaptive Red Team (DART) Working Paper #02-4, Hicks and Associates, Arlington, Virginia, December 2002.

Interviews and Briefings

- Brooks, Peter, Dr., Decision Superiority Workshop Contact. Interview conducted telephonically by author, 1 December 2003.
- Institute for Defense Analyses. Briefing for Decision Superiority Workshop, 18-19 June 2001.
- McKiernan, David, LTG, USA, Commanding General Third U.S. Army ARCENT and Combined Joint Forces Land Component (CJFLC) during Operation Iraqi Freedom (OIF). Interview by MAJ John Aarsen, Military History Group, conducted 17 November 2002.
- U.S. Joint Forces Command. Thor’s Hammer 2004 After Action Review, 25 February 2004.